

## Complete Summary

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### GUIDELINE TITLE

Cardiac rehabilitation.

### BIBLIOGRAPHIC SOURCE(S)

Agency for Health Care Policy and Research (AHCPR), Cardiac Rehabilitation Guideline Panel. Cardiac rehabilitation. Rockville (MD): U. S. Department of Health and Human Services, Public Health Service, AHCPR ; 1995 Oct. 202 p. (Clinical practice guideline; no. 17). [334 references]

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## SCOPE

### DISEASE/CONDITION(S)

- Coronary heart disease
- Heart failure
- Cardiac transplantation
- Stable angina pectoris
- Unstable angina pectoris
- Myocardial infarction
- Silent myocardial ischemia

### GUIDELINE CATEGORY

Evaluation  
 Management

### CLINICAL SPECIALTY

Cardiology  
 Family Practice

Geriatrics  
Internal Medicine

## INTENDED USERS

Advanced Practice Nurses  
Allied Health Personnel  
Dietitians  
Nurses  
Occupational Therapists  
Physical Therapists  
Physicians

## GUIDELINE OBJECTIVE(S)

- To address the relationship between identified patient needs and the provision of multifactorial services throughout the cardiac rehabilitation process to ensure optimal attention to these needs.

## TARGET POPULATION

Adults with cardiovascular disease, including those who:

- have had a myocardial infarction;
- have had coronary artery bypass surgery (CABG);
- have chronic stable angina pectoris;
- have had a heart transplant; or
- have undergone percutaneous transluminal coronary angioplasty or heart valve surgery.

## INTERVENTIONS AND PRACTICES CONSIDERED

Cardiac rehabilitation services including:

1. Exercise training
2. Education, counseling, and behavioral interventions.

## MAJOR OUTCOMES CONSIDERED

Intermediate outcomes (measurable physiologic changes resulting from the components of cardiac rehabilitation):

- Changes in lipid or lipoprotein values
- Exercise tolerance as measured by exercise testing
- Other pathophysiologic measures such as changes in myocardial perfusion, ventricular performance or coronary artery diameter as an indicator of regression or progression of coronary atherosclerosis

Health outcomes (outcomes experienced or reported by patients):

- Exercise tolerance

- Cardiovascular symptoms
- Cardiovascular morbidity or mortality
- Total mortality
- Psychosocial status (level of anxiety or depression)

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
 Hand-searches of Published Literature (Secondary Sources)  
 Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The data sources for review of the scientific literature included: (1) the National Library of Medicine (MEDLARS) through an electronic-based software system (Grateful Med); (2) PsycINFO, ERIC, and CINAHL databases; and (3) review of potentially appropriate scientific publications not indexed in these databases, with special emphasis on the psychosocial and professional nursing literature. In addition, recognized national and international experts in cardiac rehabilitation were solicited to provide the panel with appropriate literature citations to consider for review.

Criteria for admissible evidence included publication subsequent to 1966, availability of the full scientific paper in English, and original scientific work presented in full in peer-reviewed journals. Abstracts were not included for review. Review articles, as well as position papers and other summary statements from relevant professional and governmental organizations, served as sources for supporting information and other resource functions (when used, these are clearly indicated in the guideline).

### NUMBER OF SOURCE DOCUMENTS

Almost 900 scientific reports were examined; approximately 500 were determined not relevant on the basis of criteria defined for admissible evidence. Over 400 reports were critically reviewed, and 334 are included.

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ratings reflect both the quality of the studies, including study design and methods used, and the consistency of the results of the scientific evidence:

A: Scientific evidence provided by well-designed, well-conducted, controlled trials (randomized and nonrandomized) with statistically significant results that consistently support the guideline recommendation.

B: Scientific evidence provided by observational studies or by controlled trials with less consistent results to support the guideline recommendation.

C: Expert opinion that supports the guideline recommendation because the available scientific evidence did not present consistent results, or controlled trials were lacking.

## METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses  
Systematic Review with Evidence Tables

## DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The panel established criteria for inclusion or exclusion of an individual report for further review and its potential use as a source of evidence for the guideline recommendations. The panel also established the hierarchy of study design and conduct prior to review of the scientific literature. The organization of the literature review included an ongoing determination of intra- and interrater reliability. This was carried out by the panel co-chairs and the project director and included multiple reviews of the same scientific report by several panel members. Finally, the reports of scientific evidence addressing each cardiac rehabilitation intervention were reviewed as a group; conclusions were reached by the entire panel regarding the outcomes described to result from each intervention.

Meta-analyses were not commissioned in the development of this guideline. The panel decided that meta-analysis was not indicated because of the considerable differences in patient populations, study designs, intervention techniques, and lack of details in many reports. These problems challenge the validity of applying meta-analytical techniques to this database. Furthermore, cardiac rehabilitation interventions are multifactorial, and the interrelated effects of the interventions or elements make the contribution of each specific intervention to the outcome difficult to quantify. Finally, the pronounced temporal changes in both the acute and the long-term treatment of patients with CHD over the decades in which the cardiac rehabilitation studies were conducted provided additional justification not to use meta-analytical methods. Instead a comparison of benefits and harms was undertaken for each intervention component of cardiac rehabilitation services, when the scientific evidence enabled such comparison.

## METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The panel principally based the conclusions and recommendations in this guideline on scientific evidence from an extensive review of original research published in peer-reviewed medical and health sciences journals. The reports of scientific evidence addressing each cardiac rehabilitation intervention were reviewed as a group; conclusions were reached by the entire panel regarding the outcomes described to result from each intervention. When appropriate and necessary, expert opinion was formally derived from the panel to supplement or balance the conclusions reached from review of the scientific evidence. The original guideline document clearly identifies when expert opinion was used to substantiate a recommendation.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

## COST ANALYSIS

A limited number of economic evaluations of cardiac rehabilitation in patients after coronary events demonstrated favorable economic outcomes. Economic evaluations of cardiac rehabilitation were performed in two randomized controlled trials and two nonrandomized controlled trials. These trials involved multifactorial cardiac rehabilitation, but one trial focused on the role of occupational work evaluation. Although none of these studies provided comprehensive economic analyses, the costs of cardiac rehabilitation have to be considered in the perspective of benefits of such rehabilitation.

In a randomized trial of 8 weeks of comprehensive cardiac rehabilitation, initiated within 6 weeks of myocardial infarction, each patient was estimated to have gained 0.052 quality-adjusted life years. With direct costs of \$480, or \$30 per session, the cost-effectiveness of this brief intervention was measured at \$9,200 per quality-adjusted life year. This is similar to the cost-effectiveness of well-established medical interventions such as coronary artery bypass graft surgery (CABG) for left main coronary artery disease and is more cost-effective than other interventions such as captopril for hypertension or lovastatin for hypercholesterolemia, but is less cost-effective than smoking cessation or treatment with aspirin or beta blockers after acute myocardial infarction.

As an alternate strategy, an occupational work evaluation was the central intervention in a randomized trial of patients who were working prior to myocardial infarction. Patients were given advice about exercise and other preventive interventions to be performed at home, with nurse followup. At the 6-month followup, an earlier return to work in intervention patients resulted in an average increase in earned salary of \$2,100 per patient. In addition, intervention patients had an average decrease in outpatient medical care costs of \$500 per patient. However, an initial attempt at incorporating these interventions into routine clinical practice had less favorable results.

A nonrandomized controlled trial of cardiac rehabilitation in patients following myocardial infarction and coronary artery bypass graft surgery in Sweden document favorable economic and clinical outcomes. During the 5 years of followup, hospital readmissions for cardiovascular disease were 20.7 days for the intervention group compared with 16.1 days for the control group ( $p < .05$ ).

Rehabilitation patients returned to work more frequently and had decreased sick leave costs. During the fifth year, rehabilitation patients were working at 53 percent of their preinfarction capacity compared with 38 percent for control patients; 52 percent of the rehabilitation patients were still actively employed compared with 24 percent of control patients ( $p < .01$ ). In the overall economic analyses, rehabilitation costs were offset by the lower hospital readmission rates and increased work productivity, which resulted in a 5-year cost saving to the Swedish system of \$12,000 per patient.

A nonrandomized controlled trial of multifactorial cardiac rehabilitation in United States patients following myocardial infarction and coronary artery bypass graft surgery documented a lower cardiac rehospitalization rate and a lower cost per hospitalization during 2 years of followup; hospitalization charges were lower on average by \$740 per patient.

## METHOD OF GUIDELINE VALIDATION

### Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Peer review was undertaken to evaluate the reliability and utility of the guideline in clinical practice. Several draft versions of this guideline were reviewed by 41 health professionals. Peer review occurred on two separate occasions as the guideline was developed. The detailed comments of the peer reviewers were addressed by the panel and incorporated into the guideline.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

The strength of evidence definitions are provided at the end of the "Major Recommendations" field.

#### Effects of Cardiac Rehabilitation Exercise Training

##### Exercise Tolerance

##### Recommendation:

Cardiac rehabilitation exercise training consistently improves objective measures of exercise tolerance, without significant cardiovascular complications or other adverse outcomes. Appropriately prescribed and conducted exercise training is recommended as an integral component of cardiac rehabilitation services, particularly for patients with decreased exercise tolerance. Continued exercise training is required to sustain improved exercise tolerance.

(Strength of Evidence = A)

##### Strength Training

#### Recommendation:

Strength training improves skeletal muscle strength and endurance in clinically stable coronary patients. Training measures designed to increase skeletal muscle strength can safely be included in the exercise-based rehabilitation of clinically stable coronary patients, when appropriate instruction and surveillance are provided.

(Strength of Evidence = B)

#### Exercise Habits

#### Recommendation:

Cardiac rehabilitation exercise training promotes increased participation in exercise in addition to rehabilitation exercise training in patients after myocardial infarction or CABG. This effect does not persist long-term after completion of exercise rehabilitation. Long-term cardiac rehabilitation exercise training is recommended to provide the benefit of enhanced physical activity and exercise habits.

(Strength of Evidence = B)

#### Symptoms

#### Recommendation:

Exercise rehabilitation decreases angina pectoris in patients with coronary disease and decreases symptoms of heart failure in patients with left ventricular systolic dysfunction. Exercise training is recommended as an integral component of the symptomatic management of these patients.

(Strength of Evidence = B)

#### Smoking

#### Recommendation:

Exercise training has little or no effect on smoking cessation. Smoking cessation is achieved by specific smoking cessation strategies.

(Strength of Evidence = B)

#### Lipids

#### Recommendation:

Cardiac rehabilitation exercise training is not recommended as a sole intervention for lipid modification because of its inconsistent effect on lipid and lipoprotein levels. Optimal lipid management requires specifically directed dietary and, as

medically indicated, pharmacologic management, in addition to cardiac rehabilitation exercise training.

(Strength of Evidence = B)

Body Weight

Recommendation:

Cardiac rehabilitation exercise training as a sole intervention has an inconsistent effect on controlling overweight and is not recommended as a sole intervention for this risk factor. Optimal management of overweight requires multifactorial rehabilitation including nutritional education and counseling and behavioral modification in addition to exercise training.

(Strength of Evidence = C)

Blood Pressure

Recommendation:

Rehabilitative exercise training as a sole intervention has no demonstrable effect in lowering blood pressure levels. Multifactorial cardiac rehabilitation, including exercise training, has an inconsistent effect in lowering blood pressure levels; major confounding variables include the use of antihypertensive medication and medication changes.

(Strength of Evidence = B)

Psychological Well-Being

Recommendation:

Cardiac rehabilitation exercise training -- with and without other cardiac rehabilitation services -- generally results in improvement in measures of psychological status and functioning. Exercise training as a sole intervention does not consistently result in improvement in measures of anxiety and depression. Exercise training is recommended to enhance measures of psychological functioning, particularly as a component of multifactorial cardiac rehabilitation.

(Strength of Evidence = B)

Social Adjustment and Functioning

Recommendation:

Cardiac rehabilitation exercise training improves social adjustment and functioning. Exercise training is recommended to improve these social outcomes.

(Strength of Evidence = B)

## Return to Work

### Recommendation:

Cardiac rehabilitation exercise training exerts less influence on rates of return to work than many nonexercise variables including employer attitudes, prior employment status, economic incentives, and the like. Exercise training as a sole intervention is not recommended to facilitate return to work.

(Strength of Evidence = A)

## Morbidity and Safety Issues

### Recommendation:

Cardiac rehabilitation exercise training does not change the rates of nonfatal reinfarction. The safety of exercise rehabilitation is well established; rates of infarction and cardiovascular complications during exercise training are very low.

(Strength of Evidence = A)

On the basis of the meta-analytical data, total and cardiovascular mortality are reduced in patients following myocardial infarction who participate in cardiac rehabilitation exercise training, especially as a component of multifactorial rehabilitation.

(Strength of Evidence = B)

## Pathophysiologic Measures

### Extent of Coronary Atherosclerosis

#### Recommendation:

Cardiac rehabilitation exercise training as a sole intervention does not result in regression or limitation of progression of angiographically documented coronary atherosclerosis. When combined with intensive dietary intervention -- with and without lipid-lowering drugs -- exercise training may result in regression or limitation of progression of angiographically documented coronary atherosclerosis.

(Strength of Evidence for Lack of Efficacy of Exercise Training Only = A, Strength of evidence for Efficacy of Multifactorial Intervention = B)

## Hemodynamic Measurements

### Recommendation:

Cardiac rehabilitation exercise training has no apparent effect on development of a coronary collateral circulation and produces no consistent changes in cardiac hemodynamic measurements at cardiac catheterization. Exercise training in

patients with heart failure and a depressed ventricular ejection fraction produces favorable hemodynamic changes in the skeletal musculature. Cardiac rehabilitation exercise training is recommended to improve skeletal muscle functioning; it does not enhance cardiac hemodynamic function or promote development of a coronary collateral circulation.

(Strength of Evidence = B)

#### Myocardial Perfusion and/or Evidence of Myocardial Ischemia

##### Recommendation:

Cardiac rehabilitation exercise training decreases myocardial ischemia as measured by exercise ECG testing, ambulatory ECG recording, and radionuclide perfusion imaging. Cardiac rehabilitation exercise training is recommended to improve these measures of myocardial ischemia.

(Strength of Evidence = B)

#### Myocardial Contractility, Ventricular Wall Motion

#### Abnormalities, and/or Ventricular Ejection Fraction

##### Recommendation:

Cardiac rehabilitation exercise training has little effect on ventricular ejection fraction and regional wall motion abnormalities. The effect of exercise training on left ventricular function in patients after anterior wall Q-wave myocardial infarction with left ventricular dysfunction is inconsistent. Cardiac rehabilitation exercise training is not recommended to improve measures of ventricular systolic function.

(Strength of Evidence = B)

#### Occurrence of Cardiac Arrhythmias

##### Recommendation:

Rehabilitative exercise training has inconsistent effects on ventricular arrhythmias.

(Strength of Evidence = B)

#### Patients With Heart Failure and Cardiac Transplantation

#### Heart Failure

##### Recommendation:

Rehabilitative exercise training in patients with heart failure and moderate-to-severe left ventricular systolic dysfunction improves functional capacity and

improves symptoms. These changes usually occur without changes in left ventricular function. Cardiac rehabilitation exercise training in patients with heart failure and left ventricular systolic dysfunction is recommended to attain functional and symptomatic improvement but with a potentially higher likelihood of adverse events.

(Strength of Evidence = A)

## Cardiac Transplantation

### Recommendation:

Rehabilitative exercise training in patients following cardiac transplantation improves measures of exercise tolerance and is recommended for this purpose. Lack of control populations limits the ascertainment of spontaneous improvement.

(Strength of Evidence = B)

## Elderly Patients

### Recommendation:

Elderly coronary patients have exercise trainability comparable to that of younger patients participating in similar exercise rehabilitation. Elderly female and male patients show comparable improvement. Referral to and participation in exercise rehabilitation is less frequent at elderly age, especially for elderly females. No complications or adverse outcomes of exercise training at elderly age were described in any study. Elderly patients of both genders should be strongly encouraged to participate in exercise-based cardiac rehabilitation.

(Strength of Evidence = B)

## Effects of Cardiac Rehabilitation Education, Counseling and Behavioral Interventions

### Smoking

#### Recommendation:

A combined approach of education, counseling, and behavioral interventions in cardiac rehabilitation results in smoking cessation and relapse prevention and is recommended for cardiac risk reduction.

(Strength of Evidence = B)

### Lipids

#### Recommendation:

Intensive nutritional education, counseling, and behavioral interventions improve dietary fat and cholesterol intake. Education, counseling, and behavioral interventions about nutrition -- with and without pharmacologic lipid-lowering therapy -- result in significant improvement in blood lipid levels and are recommended as components of cardiac rehabilitation.

(Strength of Evidence = B)

#### Body Weight

##### Recommendation:

Multifactorial rehabilitation that combines dietary education, counseling, and behavioral interventions designed to reduce body weight can help patients lose weight. Education as a sole intervention is unlikely to achieve and maintain weight loss. These multifactorial cardiovascular risk-reduction interventions are recommended as components of comprehensive cardiac rehabilitation.

(Strength of Evidence = B)

#### Blood Pressure

##### Recommendation:

Expert opinion supports education as an important component of a multifactorial education, counseling, behavioral intervention, and pharmacologic approach to the management of hypertension. This approach is documented to be effective in nonrehabilitation populations and should also be included in cardiac rehabilitation. Education, counseling, and behavioral interventions as sole modalities have not been shown to control elevated blood pressure levels.

(Strength of Evidence = B)

#### Exercise Tolerance

##### Recommendation:

Cardiac rehabilitation education, counseling, and behavioral interventions without exercise training are unlikely to improve exercise tolerance and are not recommended for that purpose.

(Strength of Evidence = C)

#### Symptoms

##### Recommendation:

Cardiac rehabilitation education, counseling, and behavioral interventions are recommended alone, or as components of multifactorial cardiac rehabilitation, to reduce symptoms of angina.

(Strength of Evidence = B)

#### Return to Work

##### Recommendation:

Education, counseling, and behavioral interventions have not been shown to improve rates of return to work, which are contingent on many social and policy issues. In selected patients, formal cardiac rehabilitation vocational counseling may improve rates of return to work.

(Strength of Evidence = C)

#### Stress and Psychological Well-Being

##### Recommendation:

Education, counseling, and psychosocial interventions -- either alone or as components of multifactorial cardiac rehabilitation -- result in improved psychological well-being. Education, counseling, and behavioral interventions are recommended to complement the psychosocial benefits of exercise training.

(Strength of Evidence = A)

#### Morbidity

##### Recommendation:

Education, counseling, and behavioral interventions are recommended as part of multifactorial risk intervention for patients with CHD to decrease progression of coronary atherosclerosis and lower coronary event rates. Cardiac rehabilitation education as a sole intervention appears ineffective in altering morbidity.

(Strength of Evidence = B)

Education, counseling, and behavioral interventions reduce cardiac and overall mortality rates and are recommended in the multifactorial rehabilitation management of patients with CHD.

(Strength of Evidence = B)

#### Intake Assessment and Risk Stratification for Exercise Surveillance

#### Alternate Approaches to the Delivery of Cardiac Rehabilitation Services

##### Recommendation:

Alternate approaches to the delivery of cardiac rehabilitation services, other than traditional supervised group interventions, can be implemented effectively and safely for carefully selected clinically stable patients. Transtelephonic and other

means of monitoring and surveillance of patients can extend cardiac rehabilitation services beyond the setting of supervised, structured, group-based rehabilitation. These alternate approaches have the potential to provide cardiac rehabilitation services to low- and moderate-risk patients who comprise the majority of patients with stable coronary disease, most of whom do not currently participate in supervised, structured rehabilitation.

(Strength of Evidence = A)

#### Adherence

##### Recommendation:

Adherence to cardiac rehabilitation services may improve patient outcomes. Adherence to cardiac rehabilitation services may be enhanced by clear communication; emotional support; understanding of the patient's (and family's) values, viewpoints, and preferences; and integration of the intervention into the patient's lifestyle.

(Strength of Evidence = C)

#### Cost

##### Recommendation:

Limited data suggest that multifactorial cardiac rehabilitation is a cost-effective use of medical care resources.

(Strength of Evidence = B)

#### Definitions:

Ratings reflect both the quality of the studies, including study design and methods used, and the consistency of the results of the scientific evidence:

A: Scientific evidence provided by well-designed, well-conducted, controlled trials (randomized and nonrandomized) with statistically significant results that consistently support the guideline recommendation.

B: Scientific evidence provided by observational studies or by controlled trials with less consistent results to support the guideline recommendation.

C: Expert opinion that supports the guideline recommendation because the available scientific evidence did not present consistent results, or controlled trials were lacking.

#### CLINICAL ALGORITHM(S)

A decision tree provides a summary of the highlights of the recommendations for cardiac rehabilitation services. The decision tree is divided into three components:

patient categories; assessment and individualization of the treatment plan for exercise training; and assessment and individualization of the treatment plan for risk factor modification and psychosocial status.

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence (randomized or nonrandomized controlled trial, observational studies, or expert opinion) is identified and graded for each recommendation.

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

Cardiac rehabilitation programs are designed to limit the physiologic and psychological effects of cardiac illness, reduce the risk for sudden death or reinfarction, control cardiac symptoms, stabilize or reverse the atherosclerotic process, and enhance the psychosocial and vocational status of selected patients. The most substantial benefits include:

- Improvement in exercise tolerance.
- Improvement in symptoms.
- Improvement in blood lipid levels.
- Reduction in cigarette smoking.
- Improvement in psychosocial well-being and reduction of stress.
- Reduction in mortality.

### POTENTIAL HARMS

Potential harmful health outcomes resulting from cardiac rehabilitation include increases in cardiovascular morbidity, cardiovascular mortality, or total mortality. However, the safety of cardiac rehabilitation exercise training is inferred from aggregate analysis of clinical experience. None of the more than three dozen randomized controlled trials of cardiac rehabilitation exercise training in patients with CHD, involving over 4,500 patients, described an increase in morbidity or mortality in rehabilitation compared with control patient groups. A Survey of 142 cardiac rehabilitation programs in the United States, involving patients participating in exercise rehabilitation from 1980 to 1984, reported, based on aggregate data, a low rate of nonfatal myocardial infarction of 1 per 294,000 patient-hours; the cardiac mortality rate was 1 per 784,000 patient-hours. A total of 21 episodes of cardiac arrest occurred, with successful resuscitation of 17 patients. Thus the safety of exercise rehabilitation is established by the very low rates of occurrence of myocardial infarction and cardiovascular complications during exercise training.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

The guideline reflects the state of knowledge, current at the time of publication, on effective and appropriate care. Given the inevitable changes in the state of scientific information and technology, periodic review, updating, and revision will be done.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

### RELATED QUALITY TOOLS

- [Recovering From Heart Problems Through Cardiac Rehabilitation. Patient Guide. Consumer Guide Number 17](#)

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better  
Living with Illness  
Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Agency for Health Care Policy and Research (AHCPR), Cardiac Rehabilitation Guideline Panel. Cardiac rehabilitation. Rockville (MD): U. S. Department of Health and Human Services, Public Health Service, AHCPR ; 1995 Oct. 202 p. (Clinical practice guideline; no. 17). [334 references]

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

1995 Oct (reviewed 2000)

### GUIDELINE DEVELOPER(S)

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

#### SOURCE(S) OF FUNDING

United States Government

#### GUIDELINE COMMITTEE

Cardiac Rehabilitation Guideline Panel

#### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Panel Members: Nanette Kass Wenger, MD (Panel Co-Chair); Erika Sivarajan Froelicher, RN, PhD (Panel Co-Chair); L. Kent Smith, MD, MPH (Project Director); Philip A. Ades, MD; Kathy Berra, BSN; James A. Blumenthal, PhD; Catherine M. E. Certo, ScD, PT; Anne M. Dattilo, PhD, RD; Dwight Davis, MD; Robert F. DeBusk, MD; Joseph P. Drozda, Jr., MD; Barbara J. Fletcher, RN, MN; Barry A. Franklin, PhD; Helen Gaston; Philip Greenland, MD; Patrick E. McBride, MD, MPH; Christopher G. A. McGregor, MB, FRCS; Neil B. Oldridge, PhD; Joseph C. Piscatella; Felix J. Rogers, DO.

#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

#### ENDORSER(S)

American College of Cardiology Foundation - Medical Specialty Society

#### GUIDELINE STATUS

This is the current release of the guideline. Per a recent Evidence-based Practice Center (EPC) report commissioned by the Agency for Healthcare Research and Quality (AHRQ), the guideline is considered, in whole or in part, to still be current.

#### GUIDELINE AVAILABILITY

Electronic copies: Available from the [National Library of Medicine's HSTAT database](#).

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) [Publications Catalog](#) or the Clinical Practice Guidelines section of the [AHRQ Web site](#).

#### AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

1. Cardiac rehabilitation through secondary prevention. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, Oct 1995. (Quick reference guide for clinicians; no. 17). AHCPR Publication No. 96-0673. Available from the [National Library of Medicine's HSTAT database](#).
2. Cardiac rehabilitation. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, Oct 1995. (Guideline technical report; no. 17).

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) [Publications Catalog](#) or the Clinical Practice Guidelines section of the [AHRQ Web site](#).

## PATIENT RESOURCES

The following are available:

1. Recovering from heart problems through cardiac rehabilitation. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, Oct 1995. (Consumer guide; no. 17). AHCPR Publication No.96-0674. Available from the [National Library of Medicine's HSTAT database](#).
2. La recuperación de los problemas cardíacos a través de la rehabilitación. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, Oct 1995. (Consumer guide, Spanish; no. 17). AHCPR Publication No.96-0675. Available from the [National Library of Medicine's HSTAT database](#).

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) Publications Catalog, which is available at the [AHRQ Web site](#).

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

## NGC STATUS

This summary was completed by ECRI on October 1, 1998. The information was verified by the guideline developer on December 1, 1998.

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